IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Pentti Juhani Eromäki
Application No. 10/728,084
Filed: December 3, 2003
Confirmation No. 7665
For: INSTALLATION OF NON-ROUND ANTI-SLIP STUDS IN A VEHICLE TIRE
Examiner: Steven D. Maki
Art Unit: 1733
Attorney Reference No. 4447-67437-01

COMMISSIONER FOR PATENTS
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DECLARATION OF MATTI JUHALA UNDER 37 C.F.R. § 1.132

I, Matti Juhala, declare as follows:

1. I have been employed as a professor of vehicle engineering at Helsinki University of Technology since August 1998. I have been the manager of the Department of Engineering Design and Production at Helsinki University of Technology since January 2008. My Curriculum Vitae is attached hereto as Exhibit A.

2. I have read U.S. Patent Application No. 10/728,084 (the '084 application) and the Office Action dated December 31, 2007, in the '084 application. The Office Action rejected claims 1-42 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement because the limitation "said at least one anti-slip stud is rotated about the stud center line relative to the jaw fingers from the first stud orientation to a second, predetermined stud orientation, if the first stud orientation differs from the predetermined stud orientation, as said stud is driven through the stud capturing space" allegedly is not described in the application as filed. The Office Action also rejected claims 1-42 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement because the above limitation is not enabled by the application as filed.

3. The '084 application describes an installation tool for installing anti-slip studs having a non-round flange in a tire tread. The '084 application describes various embodiments of the installation tool and various embodiments of installation method that are adapted to install studs having non-round flanges of various shapes. In each embodiment of the installation tool, the number of jaw fingers for the installation tool is selected to match with the shape of the stud's bottom flange so as to cause a stud to be rotated with respect to the stud center line and with respect to the longitudinal center axis of the tool (the axis extending between the jaw fingers) to a predetermined stud orientation as the stud is driven through the jaw fingers. The jaw fingers are charged by a radial force towards each other and simultaneously each stud is pushed by an axial force between the jaw fingers and finally out of there. Now the radial force compels the stud to rotate between the jaw fingers into a specific orientation, which orientation is the result of the interaction between the shape of bottom flange of the stud and the respective number of jaw fingers, as is to be understood from Figs. 15-16D together with the respective text. Figs. 1A-3B, 5-13 and 19-20 of the '084 application visualize some of the end orientations attained by the jaw fingers shown the same figures. Figs. 1A and 3A visualize positions of jaw fingers when divergent toe out angles are aimed, and Figs. 1B, 2 and 3B visualize positions of jaw fingers when no toe out angle is aimed. It is clear that the interaction between a specified shape of the stud's bottom flange, the number of jaw fingers defined according to the shape of the bottom flange, the radial force of the jaw fingers towards each other and the axial force of the plunger pin causes the rotation of the stud from a random orientation to the intended orientation in respect to the tool. The intended orientation is for its part determined by the rotational position of the jaw fingers in the tool body, which rotational position is of course adjusted beforehand, as can be understood when evaluating Fig. 1A-4 and description page 7, line 25 - page 8, line 13, and page 20, line 3 - page 21, line 4. In fact '084 application says this fact directly on page 20: "*In order to install such anti-slip studs in an orientating way, at least the jaw fingers 3, 4, 5, 6 of the installation tool 1 are rotated around their jaw center lines 10 for the measure of the toe-out angle K, as marked by dotted lines in figure 15 and in figures 1A and 3A in relation to figure 2. Now the installed anti-slip studs 20 are turned around their stud center lines 30 for the measure of the toe-out angle K, because the jaw fingers force the bottom flange 22 to turn along for the same toe-out angle, so that the hard cermet pieces 27 are orientated in the tire in a predetermined position with respect to said rotation axis line P2*", i.e. at first the tool is adjusted to have intended rotational position and only after that the studs are fed between the jaw fingers, where the above

mentioned interaction causes the studs to rotate into their intended orientation in respect to the tool body. The feature of the jaw fingers functioning to cause a stud to assume a predetermined orientation as the stud is driven through the jaw fingers is disclosed also in various other passages of the present application, including: page 4, lines 18-24; page 5, lines 22-24, page 6, lines 9-12, page 8, line 14 - page 9, line 19, together with Figs.1A-13 and 19-20; and page 16, lines 4-31 + page 18, line 29 - page 20, line 2, together with Figs. 15-16D.

4. I have studied a working embodiment of the installation tool described in the '084 application. The installation tool has a flexible feed hose with substantially circular cross-section that feeds studs from a stud reservoir to the installation tool under gravity, and the tool body has a feed channel with substantially circular cross-section and a movable plunger pin for feeding studs coming from the feed hose into between the jaw fingers. Due to the inner diameter of the feed hose and feed channel being greater than the transversal dimensions of the studs, the studs are fed into the installation tool at random positions with respect to the longitudinal center axis of the tool. Before starting the stud installation work the tool body with the jaw fingers is adjusted in such a rotational position that provides the intended orientation for the studs, and kept in this position during the installation of each stud, as described in Figs. 16A to 16B and page 18, line 29 - page 20, line 2 of '084 application, as long as this orientation is needed. If different orientation in respect to the tire is needed, the stud installation work is discontinued, then the rotational position of the tool with the jaw fingers is changed to respect the intended next orientation for the studs, and then continuing the installation work while keeping the jaw fingers in this new rotational position during the installation of each stud in accordance with Figs. 16A-16B and page 9, lines 20-27, and as described on page 18, line 29 - page 20, line 2. The '084 application describes the installation method in sufficient detail so as to enable one of ordinary skill in the art of tire studs to understand the process correctly to proceed in the right and intended way during the installation work. As a stud is driven through the jaw fingers of the installation tool, the stud is rotated with respect to the stud center line and with respect to the longitudinal center axis of the tool to a predetermined orientation. Hence, the '084 application does disclose an installation tool "wherein the at least one anti-slip stud enters the stud capturing space in a first stud orientation with respect to the stud center line, and wherein by contact of each jaw finger with a respective one of the at least two first and the at least two second side portions of the bottom flange, said at least one anti-slip stud is rotated about the stud center line relative to the jaw fingers from

the first stud orientation to a second, predetermined stud orientation, if the first stud orientation differs from the predetermined stud orientation, as said stud is driven through the stud capturing space," as recited in pending claim 1 of the '084 application. Alternatively, any definition according to which said at least one anti-slip stud is rotated about the stud center line relative to the jaw fingers to a predetermined stud orientation, would actually mean the same, because: 1} An extremely seldom situation that the stud fed in such one of the infinite amount of random positions that it is not rotated at all, can be neglected, **or**; 2} When measured accurately enough every stud is rotated an at least a minimal amount (≈ infinitely small, infinitedecimal), which can be also neglected. It must be kept in mind that in mechanical constructions there are always tolerances and inaccuracies etc., and that such things do not confuse any person of ordinary skill in the art. If the inaccuracies are small enough as compared to requirements, they can be left undefined, and this is normal practice in engineering. In addition, the '084 application describes the installation tool in sufficient detail so as to enable one of ordinary skill in the art of tire studs to make and use the combination recited in pending claims 1-42.

5. I have also get acquainted with publications US 2002/0050312 (= Ostrovskis) and RU 2 152 318 (= Mironov et al,), Ostrovskis disclosing a feed pipe 30 with an ellipsoidal cross-sectional surface for shooting spikes into unvulcanized tread, and the RU-publication disclosing a charging tube 11 (направляющую трубку) and a guide tube 13 (загрузочную трубку) with section profiles meeting the section profile of the studs, two lips 14 (губки) for widening the hole in the tread, and three pusher rods 16 (толкател) positioned conically around the charging tube 11, extending through the slots in the charging tube wall to press longitudinally with their end faces against the stud body inside the outer periphery of the studs. It is clear that neither Ostrovskis nor this RU-publication describe any workable system for orientation = rotation of the studs. The reason for this fact is that a non-round pipe or tube is able to transfer the studs from one place to another place, while maintaining their orientation, only. Disclosed devices with non-round pipes/tubes do not have any means for turning the studs around their longitudinal axis, because the pipes/tubes cannot rotate studs! For the systems of Ostrovskis and RU-publication the studs must be somehow get correctly rotated prior to feeding into the pipe/tube, otherwise the studs cannot go into the pipe/tube in question. Neither Ostrovskis nor RU-publication discloses any device for the purpose of rotating studs.

The lips according to RU-publication evidently do not change the orientation of studs, but even if the lips change the orientation in a measurable amount, the only result is that the orientation attained with the tubes is lost, whereupon the studs again have random orientations! The lips of the RU-publication can only randomize the stud orientations.

6. I have also get acquainted with publications US 3,385,742 (= Pettersson) having three radially movable jaw fingers for installation of round spikes, which jaw fingers are situated in a rotatable chunk head 24. Even if non-round spikes having bottom flange, which is triangular in a way disclosed in '084 application (note: RU-publication does not disclose such triangular flange), would be fed through the Pettersson's apparatus, no acceptable orientation would happen, because: The rotation of the sleeve 25 and the plunger 22 using handles 31, 34 would destroy any orientation if attained; The jaw fingers are urged only outwards, absolutely not towards each other, whereupon no orientation can happen; A hand-held device is not suitable for orientating work.

7. It seems that in the Office Action it has been picked individual sentences from the '084 application, separated them from their original context and used to build up a hypothetical and absurd device and method, which are not supported by the '084 application as understood by a person of ordinary skill in the art. The interpretations and conclusions in the Office Action are incomprehensible.

8. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Matti Juhala

May 20th 2008
Date

CV-short

Prof. DSc. Matti Juhala

Date of birth: February 8, 1950
Place of birth: Forssa, Finland
Civilian estate: Married 1972 - two children
Languages: Finnish (fluent), English (fluent), Swedish, German (some), Italics (some)

Degrees: Diploma Engineer degree (M.Sc.) in mechanical engineering, Licentiate of Technology (Lic.Tech.) and Doctoral degrees from Helsinki University of Technology in 1974, 1986 and 1993 respectively.

Present position: (1998-) Professor of Vehicle engineering at Helsinki University of Technology. (2008-). Head of Department of Engineering Design and Production at Helsinki University of Technology

Previous positions: 1996 – 1998 acting professor of Ground Vehicle Engineering; 1974-1996 Laboratory manager of the Laboratory of Automotive Engineering; 1973 – 1974 Assistant in Machine Design and Automotive Engineering at Helsinki University of Technology.

Academic activities: Opponent in four doctoral debates. Preliminary inspector in three doctoral dissertations. Supervisor of more than 120 diploma-thesis. Project leadership of over 15 research projects supported by TEKES, Academy of Finland, EU and Finnish Industry. Reviewer in three international Journals.

Academic interests:

- Vehicle engineering in general
- Vehicle dynamics and tyre/road contact
- Vehicle electronics and systems engineering
- Industrial applications of above mentioned technologies

Publications: More than 50 articles and papers in international conferences, journals and books. Complete list of the publications in http://www.otalib.fi/tkk/julkaisee/search.html.

Membership in scientific Societies: The Finnish Association of Automotive Engineers Suomen Autoteknillinen Liitto ry. SATL , president 1994-2007 honoray member since 2007; Society of Automotive Engineers International SAE, member since 1979; Vereine Deutche Ingenieurs VDI, member; FISITA - International Federation of Automotive Engineering Societies – EBM 1996 – 2003; Vice President education since 2004; EAEC – European Automotive Engineers Co-operation - Council delegate since 1990

Hobbies: automotive, genealogy, sauna testing